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ENVIRONMENT

Binyoti Amungwafor
Remediation and Redevelopment
Department of Natural Resources
2300 North Dr. Martin Luther King Jr. Drive
Milwaukee, Wisconsin 53212

Subject:
Remedial Activities Progress Report and Work Plan for Supplemental Remediation, Decorah Shopping Center Annex, 1011-1025 South Main Street, West Bend, Wisconsin (BRRTS #02-67-151266; FID #267161400).

Date:
June 30, 2011

Contacts
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Dear Mr. Amungwafor:

On behalf of Continental VI Fund, LP (Continental), ARCADIS is submitting the enclosed status letter to provide you with a summary of the results of remedial activities that have been performed to date at the Decorah Shopping Center Annex property (the Site). ARCADIS has conducted remedial actions in accordance with the "*Summary of Pilot Study Activities and Request for Permit Amendment for Full Scale Remediation*" dated June 27, 2006. The Wisconsin Department of Natural Resources (WDNR) approved ARCADIS' original remediation proposal in a letter dated December 11, 2003.

A summary of the post-treatment groundwater sample results collected through August 2010 is presented below. Based on a review of the analytical results, the chemical oxidation injections have been successful at reducing the concentrations of tetracholorethene (PCE) in groundwater. However, because there has been some rebound of PCE concentrations since the initial injection events were conducted in 2007, ARCADIS recommends the completion of an additional injection event with concurrent groundwater monitoring. The goal of the additional injection is to allow the chemical oxidation process to continue to reduce PCE concentrations in groundwater. A work plan and cost estimate for the recommended supplemental remediation activities is also presented herein because the proposed activities are beyond the scope and budget presented in ARCADIS' original proposal, dated October 13, 2003.

Site Location and Background

A dry cleaning facility (Mr. Bob's One Hour Dry Cleaning) was formerly located at the south end of the Decorah Shopping Center Annex. PCE was used and stored within the dry cleaning facility. Dry cleaning operations are no longer conducted at the Site. Site investigation activities completed by Key Engineering Group from 1998 through

2003 indicated PCE and associated chlorinated volatile organic compounds (VOCs) were detected in soil and groundwater at the Site, and dissolved VOCs had migrated downgradient of the Site. The PCE appears to be from a leak in the sewer line connected to the former dry cleaner near the area of MW-30. ARCADIS was subsequently retained by Continental to complete the remediation phase of the project. The Site location is shown on Figure 1.

The Site layout is presented on Figure 2. Figure 2 also depicts the PCE groundwater concentrations detected in Site monitoring wells in August 2004, and the most recent groundwater sampling data collected from each well (either August 2010 or January 2009). The August 2004 groundwater data represent baseline (pre-treatment) PCE groundwater concentrations. Historically, the highest PCE concentrations have been detected in Monitoring Wells MW-13 and MW-29, located in Lincoln Drive West. During installation of the injection wells, a concentration of 23,000 micrograms per liter (µg/L) PCE was detected in MW-30. Therefore, ARCADIS focused the remedial treatment in the areas of MW-13, MW-29, and MW-30, as shown on Figure 3.

Status of Remediation Activities

A groundwater remediation pilot study was initiated at the Site in January 2005. The results of the pilot study were summarized in a letter submitted to the WDNR on June 27, 2006. The pilot study confirmed that the proposed groundwater remediation strategy using chemical oxidation was a feasible remedial strategy. Therefore, full-scale remediation activities using permanganate to induce chemical oxidation of the PCE was implemented in May 2007. Following the permanganate injections, a long-term groundwater monitoring program was conducted between 2007 and 2010 to monitor the effects of oxidant injections on dissolved PCE concentrations. The results of the full-scale remediation activities are documented below.

Injection Activities

Chemical oxidation is being utilized to address the groundwater constituents at the Site. Application of a dilute chemical oxidant solution (permanganate) was initiated at the property in May 2007 to oxidize the PCE. The permanganate solution reacts directly with PCE and other chlorinated volatile organic compounds (CVOCs) to chemically destroy the CVOC compounds. The Site has 18 1-inch diameter injection wells installed in Lincoln Drive West, and one 4-inch injection well near MW-30 to treat groundwater impacts. The Site layout and the locations of all injection and monitoring wells are shown on Figure 3. Approximately 15,665 gallons of

permanganate solution was applied to the injection wells over a three week period in May 2007. Ongoing groundwater sampling has been conducted to evaluate the progress of remediation following the injection events.

Analytical Results

Analytical results for the groundwater samples collected during the baseline (pre-injection) monitoring in August 2004 and the subsequent groundwater sampling events are presented in Tables 1 and 2, and a subset of the results are shown on Figure 2. The wells that are shown in Table 1 (MW-13 and MW-30) represent the two wells that are located closest to the injection wells, and are within the active treatment areas. The data presented in Table 2 is from all of the monitoring wells located within and along the down and side-gradient margins of the entire PCE plume, including MW-13 and MW-30. Figure 4 depicts the lateral extent and magnitude of the original PCE plume based on the August 2004 PCE concentrations (i.e. prior to implementation of remedial treatment). The magnitude and extent of the PCE plume in January 2009 and August 2010 (1.5 years and 3 years post-treatment, respectively) are shown on Figures 5 and 6.

Prior to implementing the remediation program, a review of groundwater data collected during the site investigation indicated the highest PCE concentration was believed to be approximately 2,000 µg/L in the area of Boring GP-18 based on a groundwater sample collected from a temporary well installed within Boring GP-18. Following installation of a permanent monitoring well (MW-30) adjacent to Boring GP-18, ARCADIS determined that groundwater PCE concentrations were much higher in the permanent well compared to the temporary well. The PCE concentration in a groundwater sample collected from Well MW-30 in February 2007 was 23,000 µg/L. Due to this higher than expected PCE concentration, ARCADIS determined that a greater volume of permanganate was required for effective treatment in this area. The added permanganate volume required to treat the area by Well MW-30 also increased the duration of the first injection event by an extra week.

The initial permanganate injection in the area of MW-30 reduced the PCE concentration to below laboratory detection limits following the injection event, and the concentration remained near the Enforcement Standard of 5 µg/L for a full year following treatment. However, as the permanganate was used up during the chemical oxidation process, and through the natural flushing of groundwater through the treatment area over time, the PCE concentration rebounded as the permanganate dissipated over time. While the PCE concentration at MW-30 has not rebounded

nearly as high as the pre-treatment concentration, the groundwater data collected between January 2009 and August 2010 exhibited an increasing trend.

In the treatment area in Lincoln Drive West, Well MW-13 had a pre-remediation PCE concentration of 1,100 µg/L. During the most recent round of groundwater sampling conducted in August 2010, MW-13 had a PCE concentration of approximately 334 µg/L. Thus, although the initial permanganate injections reduced the PCE concentrations following treatment, some rebound in concentrations has occurred within both treatment areas over time as the permanganate solution was utilized and dissipated over time. The concentrations in the two monitoring wells located closest to the active treatment areas (MW-13 and MW-30) are summarized in Table 1.

Further downgradient of the active treatment areas, the PCE concentrations have decreased significantly following treatment. The PCE concentration in Monitoring Well MW-14, located approximately 360 feet downgradient of MW-13, decreased from 220 to 3.5 µg/L. The PCE concentration in Monitoring Well MW-19 decreased from 27 to 8.2 µg/L. The PCE concentrations in other downgradient wells, including MW-29, MW-10 and MW-8, have decreased below laboratory detection limits following the permanganate injections. The reduction of PCE concentrations in these wells has demonstrated a reduction in the overall plume size and concentrations, as shown on Figures 5 and 6.

Recommendations and Work Plan for Supplemental Remediation

Based on a review of the analytical results, the chemical oxidation injections have been successful at reducing PCE concentrations below pre-remedial (baseline) concentrations in the majority of the wells. However, an additional injection event will be needed to reduce the concentrations of PCE within the heart of the plume to levels that can be managed through natural attenuation. ARCADIS recommends the completion of one additional injection event and supplemental groundwater monitoring. The following is a summary of the recommended supplemental remediation activities:

- One additional chemical oxidation injection event using permanganate in the areas of MW-13, MW-19, and MW-30 to reduce the PCE concentrations. This application will be completed in accordance with the previous work plan and injection permit. The injection event is anticipated to be completed over the course of approximately 2 weeks.

- In the last few years (after the 2007 injections were completed), federal regulations with respect to storage and handling of potassium permanganate have become fairly onerous because the product (the dry form of permanganate) is now regulated by the Department of Homeland Security (DHS). Therefore, for this supplemental injection event, ARCADIS proposes utilizing sodium permanganate. Sodium permanganate is the same type of chemical oxidant as potassium permanganate, but it comes in liquid form and is easier to mix and handle in the field. In addition, this liquid form of permanganate is not regulated by DHS. The sodium permanganate solution reacts with PCE and other CVOCs in the same manner as the potassium permanganate to chemically destroy the CVOC compounds. ARCADIS requests approval from the WDNR to modify the existing injection permit to reflect use of a dilute solution of sodium permanganate rather than potassium permanganate.

- ARCADIS will coordinate access to the off-site AutoZone property and public rights-of-way prior to proceeding with the injection event.

- Seven rounds of groundwater monitoring will be completed following the injection activities. Five of the monitoring events will be limited to select monitoring in the vicinity of the source areas including MW-13, MW-29 and MW-30. Two sample events (one per year) will be conducted site-wide. The post-remediation groundwater monitoring will be completed to demonstrate that the residual groundwater concentrations can be managed through natural attenuation.

- Due to the PCE rebound observed in the area of MW-30 following the 2007 injection events, there is concern that PCE may be sorbed to unsaturated soils. Collection of up to three soil samples in the vicinity of MW-30 is proposed to assess the soil PCE concentrations in this area to determine if treatment of the unsaturated soils may be required. ARCADIS notes that soil sampling in this area was not conducted by the consultant who completed the site investigation work.

- Several of the protective well vaults have sustained damage during the winter months and are in need of maintenance. These wells will be repaired under this scope of work concurrent with the completion of other site work.

- ARCADIS will review the groundwater data on a regular basis to assess the status of the supplemental injection activities. In the event supplemental injection wells are needed, ARCADIS will install, develop, and sample the additional wells as warranted. At this time ARCADIS does not propose the installation of any supplemental injection wells.

- One annual report will be prepared at the end of the first year of the supplemental injection and monitoring events.

- A final remedial action and closure report will be prepared upon completion of the post-remediation groundwater monitoring. CP is not seeking approval for expenditures related to closure reporting and GIS registrations because the budget for these tasks was previously approved by the WDNR under the original work scope, and therefore these tasks would be completed under the existing approved budget.

- All monitoring and injection wells will be abandoned in accordance with NR 141 upon completion of the remediation activities, after site closure is granted.

Estimated Cost

The supplemental injection, monitoring, and well abandonment and repair tasks proposed herein were not included in the original scope of work approved by the WDNR in December 2003. The estimated cost for completing the supplemental scope of work, including costs from ARCADIS' original work scope that were previously approved by the WDNR but have not yet been expended, is $98,300. Because some of the tasks described herein will be completed using funds from the original (remaining) budget approved by the WDNR, the actual supplemental funds requested to complete the work scope described herein is $49,800. Table 3 provides a summary of the estimated costs for each task. In accordance with the Wisconsin Dry Cleaner Environmental Program, ARCADIS requests approval of the supplemental scope of work and associated costs in the amount of $49,800.

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Schedule

ARCADIS will implement the supplemental remediation activities upon receiving approval of the scope of work and budget from the WDNR. The supplemental injection event would be scheduled pending WDNR approval of the work scope.

Closing

We appreciate your assistance with this project. Should you have any questions regarding the enclosed information or require additional information, please call us at your convenience.

Sincerely,

ARCADIS U.S., Inc.

Dawn Gabardi
Senior Geologist

Copy:
Jeanne Peterson – Continental VI Fund L.P.

Table 3. Proposed Cost Estimate for Supplemental Remediation and Monitoring Activities, Decorah Shopping Center Annex, West Bend, Wisconsin.

	Number	Unit		Rate	Unit	Totals
Coordinate and Conduct Injection Event; Status Report Preparation (a)						
Injection Equipment						
Mix Tank	1	Units	@	$400	/Each	$400
Chemical Mixers	1	Units	@	$250	/Each	$250
Injection Manifold	1	Units	@	$1,000	/Each	$1,000
Injection Trailer	2	Weeks	@	$400	/Week	$800
Generator	2	Weeks	@	$180	/Week	$360
Carbon Filter	1	Units	@	$600	/Each	$600
Neutralizer/Decon/H&S Equip	1	Lump Sum	@	$500	/LS	$500
Equipment Delivery	1	Lump Sum	@	$300	/LS	$300
Staff Scientist I (1 week)	40	Hrs	@	$72	/Hr	$2,880
Staff Scientist II (2 weeks)	120	Hrs	@	$83	/Hr	$9,960
Project Staff I	20	Hrs	@	$96	/Hr	$1,920
Senior Project Staff I	45	Hrs	@	$125	/Hr	$5,625
Soil sampling	3	Samples	@	$65	/Sample	$195
Chemical Purchase	5075	lbs	@	$2.50	/lb	$12,688
Chemical Shipping	1	Lump Sum	@	$1,000	/LS	$1,000
Misc. Equipment/Supplies	1	Lump Sum	@	$702	/LS	$702
				Subtotal Injection/Reporting		$39,180
Injection Progress Monitoring (Quarterly, 3 wells in treatment area only; MW-13, MW-29, MW-30)						
Staff Scientist I	12	Hrs	@	$72	/Hr	$864
Senior Project Staff I	3	Hrs	@	$125	/Hr	$375
Database Manager	1	Hrs	@	$80	/Hr	$80
Equipment (YSI, water level meter, etc)	1	Day	@	$250	/Day	$250
Field Supplies (tubing, gloves, etc.)	1	Lump Sum	@	$101	/LS	$101
VOCs	3	Samples	@	$65	/Sample	$195
QA/QC Samples	1	Sample	@	$65	/Sample	$65
		Subtotal Progress Monitoring (one event)				$1,930
		Subtotal (Five Quarterly Progress Monitoring Events)				$9,650
Post-Remediation Sitewide Groundwater Monitoring (Annual, 2 Events)						
Staff Scientist I	60	Hrs	@	$72	/Hr	$4,320
Senior Project Staff I	6	Hrs	@	$125	/Hr	$750
Database Manager	2	Hrs	@	$80	/Hr	$160
Vehicle	6	Days	@	$75	/Day	$450
Equipment (YSI, water level meter, etc)	6	Days	@	$250	/Day	$1,500
Field Supplies	1	Lump Sum	@	$300	/LS	$300
VOCs	25	Samples	@	$65	/Sample	$1,625
QA/QC Samples	2	Samples	@	$65	/Sample	$130
		Sitewide Groundwater Sampling (one event)				$9,235
		Subtotal (Two Annual Sampling Events)				$18,470

Table 3. Proposed Cost Estimate for Supplemental Remediation and Monitoring Activities, Decorah Shopping Center Annex, West Bend, Wisconsin.

	Number	Unit		Rate	Unit	Totals
Well Abandonment Services						
Contractor Mobilization	1	Lump Sum	@	$500	/LS	$500
Well Abandonment (2" wells)	550	Feet	@	$4	/Foot	$2,200
Well Abandonment (1" wells)	325	Feet	@	$3	/Foot	$975
Well Abandonment (6" well)	15	Feet	@	$8	/Foot	$120
Cover Removal (2" wells)	30	Wells	@	$50	/Well	$1,500
Cover Removal (1" wells)	20	Wells	@	$35	/Well	$700
Cover Removal (6" well)	1	Wells	@	$60	/Well	$60
Surface Repair	51	Wells	@	$15	/Well	$765
Staff Scientist I	60	Hrs	@	$72	/Hr	$4,320
Senior Project Staff I	4	Hrs	@	$125	/Hr	$500
Water Level Meter	1	Week	@	$60	/Week	$60
Field Supplies	1	Lump Sum	@	$300	/LS	$300
					Subtotal Well Abandonment	$12,000
Closure Report Preparation (b)					*Subtotal*	$8,900
GIS Registration/Homeowner Notifications (b)					*Subtotal*	$10,100
					Total Projected Additional Expenditures	**$98,300**
					Remaining Budget Amount (as of June 2011)	**($48,500)**
					Requested Additional DERF Funding/Change Order Amount	**$49,800**

(a) Charges to perform the proposed injection event would be partially covered under the remaining project budget; however, the remaining budget is not sufficient to cover all of the costs of the proposed injection event, thus CP is requesting approval for a change order under DERF.

(b) These tasks were included in the original project budget approved by the WDNR, but have not yet been completed. Costs for these services would be covered under the previously approved (remaining) project budget. ARCADIS is not asking for approval of these costs a second time, but the tasks/costs are provided above for budget disclosure purposes.